

AMLA: Emlblica officinalis

Plant Identification and Habitat: Wild or cultivated throughout tropical India From the foot of the Himalayas up to an altitude of 1000m, usually in mixed Deciduous forests. A small or medium sized deciduous tree; branchlets 10-20 Cm long, feathery with small linear leaves that smell like lemon. Flowers; greenish -yellow , small, unisexual. Fruit; depressed,globose,about 2cm in diameter,with 6 vertical furrows, pale yellow. Flowering in March to May, and fruiting from September to November.

Pharmacological Action -Tonic erythrogenic, digestive laxative, rasayana, Refrigerant, diuretic, laxative, gastric acidity regulator, expectorant, anti-inflammatory, restorative tonic, regulates blood sugar, aphrodisiac, nervine, tonic, hemostatic K=daha prashamani, cakshushya, kesya, medhya, rocani, dipani, hrdaya, rasanya, vrisha, Shukrala, svedahara. Medohara, bhagnasandhanakra (heals fractures), pramehaghana (regulates blood sugar); diuretic, laxative, stomachic; bark is astringent. Flowers are Cooling and aperient. Phyllembin in fruit pulp potentiate the action of adrenaline in Vivo. Extract of fruit is antibacterial and antiviral.

Phytochemicals: Fe, ca, Mg, silica, B12, C.K= fruit pulp contains moisture 81%, Protein 5%, fat .1% mineral matter 7%, fiber 3.4%, carbohydrates 14 calcium .05% And potassium .02%,iron 1/2mg/100g. nicotinic acid.2mg/100g and vitamin C 600mg/100g. Fruit is high in pertain, phyllembin is there. Fresh amla contains about 20 times more vitamin C than orange juice and equal in antiscorbutic value to 1-2 Oranges. Dried fruit have tannins and 3-4 colloidal complexes. Other components are phyllembic acid, lipids, gallic acid, emblicol, mucic acid,ellagic acid, glucose. Seeds contain a fixed oil, phosphatides, some essential oil with linolenic, linoleic, oleic, stearic, palmitic, myristic acids. Proteolytic and lipolytic enzymes are in seeds.

Indications: bleeding, hemorrhoids, anemia, diabetes, gout, vertigo, obesity, Diabetes-all types, hyperacidity, eczema, psoriasis, hoarse voice, sore throat, inflammation, hiccoughs, hepatitis B, non-specifick urethritis, sterility, anemia, Gingivitis, glaucoma, diarrhea, constipation, active fistula, hair lossmultiple voice, threatening melanoma K= inflammation of lungs, eyes. Fised oil for hair loss. Seeds used for asthma, bronchitis, biliousness. Dried fruit is used for hemorrhage, Diarrhea, dysentery, for anemia (with iron) jaundice, dyspepsia. For acute bacillary Dysentery taken as syrup with lemon juice. As truphala good for laxative, headache, Biliousness, dyspepsia, constipation, piles, enlarged liver, ascites. Juice of bark Combined with honey and turmeric for gonorrhoea.gastritis,hepatitis, osteoporosis, Constipation, biliousness, weakness of liver and spleen, premature greying or hair Loss, general debility tissue loss, palpitation.

One can use Amla in the following ways

Fresh Juice: Rasyan, Vrishya (spermatogenic), sheet, cooling, mild laxative, diuretic (helps the functioning liver).

Dried Amla: Cooling, appetiser, checks bleeding.

Seeds: infusion useful for asthma, bronchitis and fever. Cooling, tonic, diuretic, Carminative, blood purifier, stomachic, and rejuvenator. Known to improve the immunity of the body thereby helping to control infection.

Asthma, Anaemia, memory, TB, loss of appetite, degenerative problems and to enhance *vigour and intellectual capacity*: Soak dried amla powder in fresh amla juice. Leave to dry and then repeat the process 21 times. This powder is taken twice a day with honey.

Conjunctivitis, Eye Wash: Take the juice from ripe amla still on the tree (by making an incision in the fruit). This juice can then applied in drop from to the eyes.

To relieve pain in the eyes: Make a decoction from the inside contents of the amla seed (cotyledon). Apply in drop form to the eyes.

Anaemia and jaundice: Amla powder taken with loh bhasma helps in these conditions.

Mouth ulcers (stomatitis): Make a decoction of amla leaves, gargle and rinse the mouth.

Indigestion and Diarrhoea: Take the leaves with buttermilk.

Distended bladder: Paste of amla applied onto the lower abdomen helps in passing urine.

Excessive menstrual bleeding: The paste of amla can be applied to the vagina and cervix.

Infection and to promote immunity: These plants help to counteract infection and promote resistance to illness. The fruit is consumed either raw or in dried form.

Anaemia: Use ripe fruit. Cut into pieces and spread to dry in the shade. When dry, they are laid in the sun for 1 day before sealing in an airtight container (can be used for 12 months). Dosage: 5 fresh ripe fruits or 10 to 12 dried pieces are eaten daily for 2 to 3 months. Pregnant women are advised to do this throughout the pregnancy. Children should consume 2 fresh fruits daily.

Diabetes: The juice mixed with 1 teaspoon of turmeric powder and honey is recommended on a regular basis for diabetes sufferers. The juice can be prepared by washing the fruit, grinding and then straining the juice through a clean cloth.

Diarrhoea: Take the fruit in raw or dried form, for oral dose.

Vomiting: 2 teaspoon of fruit juice is mixed with honey and taken. Dosage; once only.

Chronic Vaginal infection: causing thick, whitish discharge. The fruit is orally consumed. Preparation of the fruit dries the fruit in sunlight and store for use. Another method; fill a jar with fresh, unruined fruits and completely cover with honey. Seal it

Airtight, and cover it with a clean cloth. Let this mixture mature for 90 days. Dosage:

Eat one fruit every morning for 15 days to 1 month, from the above preparation.

Sedative/Anti-Spasmodic: These plants counteract sudden muscular contractions, relieve Pain and are soothing in action. Take the fruit in dried or raw form for oral use.

Amla enhances production of red blood cells and strengthens the teeth, hair, and nails, as well as regulating blood sugar. Recent scientific evidence shows that amla prevents lipid Peroxidation in cell membranes.

According to Ayurveda, amla is the frontline anti-inflammatory herb, and is used for a wide variety of inflammatory conditions, including hemorrhoids, gastritis, and colitis.

Scientists recently confirmed the potent anti-inflammatory action of amla in several animal studies. Researches also recently confirmed the reputed cell protective effects of this valuable herb, as well as demonstrating protective effects melanoma.

It is considered to be the prime general herb for the eyes, especially if inflammation is present, as it lowers pitta without disrupting the other two doshas. Having been shown to improve nearsightedness significantly in recent studies, amla is the most frequently used cataract medicine. Amla is a potent inhibitor of free radicals, which are one cause of cataracts. The herb improves eyesight generally, but acts slowly, possibly reaching its

Peak action over a period of several years. The dose is 250 mg. To 1 gram per day for an Indefinite period, but in practice, doses up to 7-8 grams per day are used with good success.

Phyllanthus Emblica is a plant with important healing properties and has been used for generations for this purpose in the Indian life science Ayurveda for the treatment of

Numerous diseases and disabilities. Emblica is extracted from the fruit of phyllanthus Emblica using a gentle water-based process. A specially validated process ensures a High concentration of active components in the final preparation.

The essential advantages of Emblica are its stability and efficacy over a long period of Time. While the effect of most antioxidants decreases rather rapidly, the individual components of Emblica continue to be effective in a cascade fashion. The sequential effects of such a cascade thus guarantee long-term and high level antioxidative protection.

Micro-organisms, which produce Ecton for their own protection, have existed in extreme and hostile environments for thousand of years. They live quite happily in salt lakes, saturated rock salt solutions, the bitter cold and the intense heat of the desert. Ecton guarantees their survival in all of these hostile settings.

Now these natural survival benefits of the bacterial are being utilized by Merck for human skin with the new cosmetic active ingredient. Major international cosmetic makers have already expressed their intention to use RonaCare Ecton in creams and other skincare products, as well as shampoos and lipsticks.

Triphala power is an equal mixture of the dried fruits from three plants, namely Terminalia chebula (fam. Combretaceae), terminalia bellerica (fam. Combretaceae), and Emblica officinalis (fam. Euphrobiaceae). Terminalia chebula was highly valued by the ancient Hindus as a " good manager of the house ", coordinating digestion, nutrient absorption, and the metabolic processes. Terminalia bellerica is used as an anti-inflammatory compound in Ayurvedic practice. Emblica officinalis has been traditionally recognizes as a purifier of the humors of the body.

Amla fruit is probably the richest known natural sources of vitamin C. The fruit juice contains nearly 20 times as much vitamin C as orange juice and a single fruit is equal in antiscorbutic value to one or two oranges. A tannin containing gallic acid, ellagic acid and glucose in its molecule and naturally present in the fruit, prevents or retards the oxidation vitamin and renders the fruit a valuable antiscorbutic in the fresh as well as in the dry powder. The dried fruit loses only 20% of its vitamin in 375 days when kept in a refrigerator, but loses 67% in the same period when stored at room temperature. Feeding trials on healthy human subjects show that the vitamin present in the fruit is utilized as well as pure ascorbic acid. When administered to patients suffering from pulmonary tuberculosis, Vitamin C saturation is more quickly reached with amla powder than with Synthetic vitamin C, thereby showing that the former is more readily assimilated, probably due to the presence of accessory factors.

Amla fruit has been held in high esteem in indigenous medicine. It is acrid, cooling refrigerant, diuretic and laxative. The raw fruit is eaten as an aperient. Dried fruit is useful in haemorrhage, diarrhoea and dysentery. In combination with iron, it is used as remedy for anaemia, jaundice and dyspepsia. Fermented liquor prepared from the fruit is used in jaundice, dyspepsia and cough. Emblic myrobalan is used in many compound preparations. Acute bacillary dysentery may be arrested by drinking a sherbet of amla with lemon juice. Triphala, consisting of equal parts of powdered emblic myrobalan, chebulic myrobalan (Terminalia chebula Retz.) and belleric myrobalan (T. bellerica Roxb.) is used as a laxative and in headache, biliousness, dyspepsia, constipation, piles, enlarged liver and ascites. The exudation from incisions on the fruit is used as an external application for inflammation of the eye. The flowers are cooling, refrigerant and aperient. The root and bark are astringent

The fruits are used in the preparation of writing inks and hair dyes. The dried fruit is detergent and is used as shampoo for the head. A fixed oil extracted from the fruits is reported to have the property of promoting hair growth.

The seeds are used in the treatment of asthma, bronchitis and biliousness. They contain A fixed oil, phosphatides and a small quantity of essential oil with characteristics: sp. Gr.31, 0.9220; n₃₁, 1.4758; acid val., 12.7; sap.val 185; iod. Val. (Wijs), 139.5; R.M.val.,

1.03; acetyl val., 2.03; unsapon. Matter, 3.81%; sterol content, 2.70% and saturated fatty acids, 7.0%. The component fatty acids of the oil are linolenic, 8.78; linoleic, 44.0; oleic, 28.40; steric, 2.15; palmitic, 2.99; and myristic acid, 0.95%. Proteolytic and lipolytic enzymes are present in the seeds.

The fruits, bark and leaves are rich in tannin. The distribution of tannin in the plant is as follows: fruit, 28; twig bark, 21; stem bark, 8-9; and leaves, 22%. The fruit contains two tannins, one giving on hydrolysis gallic acid, ellagic acid and glucose, and the other giving ellagic acid and glucose. Immature fruits are employed for tanning in combination with other tanstuffs such as myrobalans. The twig bark is of considerable value as a tanning material. The tannin is almost exclusively catechuic. It gives a brownish red extract and produces leather lacking somewhat in flexibility but with a soft grain. In combination with the leaves of *Carissa spinarum* (30%) and of *Anogeissus latifolia* (20%) the twig bark gives good leather with a reddish brown color. For the production and collection of tan bark on a commercial scale, coppicing is the system considered most suitable.

The leaves and fruits are used as fodder for cattle. The leaves contain a brownish yellow colouring matter used in dyeing tussar and mulberry silks and wool; when used with iron mordant, a black colour is produced. The leaves are used as manure in areca and cardamom plantations in Mysore. They may be employed also for ameliorating alkali soils.

The wood (wt. 45-58 lb./cu. Ft.) is red, hard and close-grained; it is liable to split. It is used for agricultural implements, poles and inferior building and furniture work. It is durable under water and is suited for mill-work. It is also used as fuel and for making charcoal.

Antitumour activity of *Emblca officinalis*.

Aqueous extract of *Emblca officinalis* (E.O) was found to be cytotoxic to L 929 cells in culture in a dose dependent manner. Concentration needed for 50% inhibition was found to be 16.5g/ml. E.O and chyavanaprash (a non toxic herbal preparation containing 50% E.O) extracts were found to reduce ascites and solid tumours in mice induced by DLA cells. Animals treated with 1.25 g/kg b.wt. Of E.O extract increased life span of tumour bearing animals (20%) while animals treated with 2.5 g/kg b.wt of chyavanaprash produced 60.9% increase in the life span. Both E.O and chyavanaprash significantly reduced the solid tumours. Tumour volume of control animals on 30th day was 4.6 ml where as animals treated with 1.25 g/kg b.wt of E.O extract and 2.5 g/kg bwt chyavanaprash showed tumour volume of 1.75 and 0.75 ml, respectively. E.O extract was found to inhibit cell cycle regulating enzymes cdc 25 phosphates in a dose dependent manner. Concentration needed for 50% inhibition of cdc 25 phosphatase was found to be 5 g/ml and that needed for inhibition of cdc2 Chinese was found to be >100g/ml. The results suggest that antitumour activity of E.O extract may partially be due to its interaction with cell cycle regulation.

Hepatoprotective activity of *Emblca officinalis*

Hepatoprotective activity of *Emblca officinalis* (EO) and chyavanaprash (CHY) extracts were studied using carbon tetrachloride (CCI (4)) induced liver injury model in rats. EO and CHY extracts were found to inhibit the hepatotoxicity produced by acute and chronic CCI (4) administration as seen from the decreased levels of serum and liver lipid peroxides (LPO), glutamate-phruvate transaminase (GPT), and alkaline phosphatase (ALP). Chronic CCI (4) administration was also found to produce liver fibrosis as seen from the increased levels of collagenhydroxyproline and pathological analysis. EO and CHY extracts were found to reduce these elevated levels significantly, indicating that the extract could inhibit the induction of fibrosis in rats.

Antioxidant activity of *Phyllanthus emblica* fruits

Pretreatment with the butanol extract of the water fraction of *Phyllanthus emblica* fruits at the dose of 100 mg/kg body-weight, orally administered to rats for 10 consecutive days, was found to enhance secretion of gastric mucus and hexosamine ($P < 0.001$) in the indomethacin induced ulceration of rats. The morphological observations also supported a protective effect of the stomach wall from lesion. The

indomethacin treatment of the premedicated animals with the drug hardly affected either the malondialdehyde (MDA) or superoxide dismutase (SOD) level in gastric tissue while the ulcerative agent itself significantly enhanced both the levels. An antioxidant property appears to be predominantly responsible for this cyto protective action of the drug.

The antioxidant activity of tannoid active principles of *E. officinalis* consisting of emblicanin A (37%) emblicanin B (33%), punigluconin (12%) and pedunculagin (14%), was investigated on the basis of their effects on rat brain frontal cortical and striatal concentrations of the oxidative free radical scavenging enzymes, superoxide dismutase (SOD), catalase (CAT) and glutathione peroxidase (GPX), and lipid peroxidation, in terms of thiobarbituric acid reactive products. The results were compared with effects induced by deprenyl, a selective monoamine oxidase (MAO) B inhibitor with well documented antioxidant activity. The active tannoids of *E. officinalis* (EOT),

Administered in the doses of 5 and 10 mg/kg, i.p and deprenyl (2 mg/kg,i.p), induced an increase in both frontal cortical and striatal SOD,CAT and GPX activity, with concomitant decrease in lipid peroxidation in these areas when administered once daily for 7 days. Acute single administration of EOT and deprenyl had insignificant effects. The results also indicate that the antioxidant activity of *E. officinalis* may reside in the tannoids of the fruits of the plant, which have vitamin C-like properties rather than vitamin C itself.

Anti-inflammatory activity of extracts from leaves of *Phyllanthus emblica*.

Leaves and fruits of *Phyllanthus emblica* L. have been used for the anti-inflammatory and antipyretic treatment of rural populations in its growing areas in subtropical and tropical parts of China, India, Indonesia, and the Malay peninsula. In the present study, leaves of *ph.emblica* were extracted with ten different solvents (n-hexane, diethyl ether, methanol, tetrahydrofuran, acetic acid, dichloromethane, 1,4-dioxane, toluene, chloroform and water). The inhibitory activity of the extracts against human polymorphonuclear leukocyte (PMN) and platelet functions was studied. Methanol, tetrahydrofuran, and 1,4-dioxane extracts (50 micrograms/ml) inhibited leukotriene B₄-induced migration of human PMNs by 90% and N-formyl-L-methionyl-L-phenylalanine (FMLP)-induced degranulation by 25-35%. The inhibitory activity on receptor-mediated migration and degranulation of human PMNs was associated with a high proportion of polar compound in the extracts as assessed by normal phase thin layer chromatography. Diethyl ether extract (50 micrograms/ml) inhibited calcium ionophore A23187-induced leukotriene B₄ release from human PMNs by 40% thromboxane B₂ production in platelets during blood clotting by 40% and adrenaline-induced platelet aggregation by 36%. Ellagic acid, gallic acid and rutin all compounds isolated earlier from *ph. Emblica*, could not explain these inhibitory activity on PMNs and platelets, which confirm the anti-inflammatory and antipyretic properties of this plant as suggested by its use in traditional medicine. The data suggest that the plant leaves contain as yet unidentified polar compound(s) with potent inhibitory activity on PMNs and chemically different apolar molecule(s) which inhibit both prostanoic and leukotriene synthesis.

Hepatoprotective studies on *Phyllanthus emblica* Linn.

Phyllanthus emblica is a constituent of many Hepatoprotective formulations available in market. 50% alcoholic extract of *p. emblica* and quercetin isolated from it were studied for hepatoprotective effect against country made liquor (CML) and paracetamol challenge in albino rats and mice respectively. The extract at the dose of 100 mg/100g [corrected], po and quercetin at the dose of 15mg/100 g, po, produced significant hepatoprotection.

***Emblica officinalis*: a novel therapy for acute pancreatitis**

Emblica necrotising pancreatitis is associated with an unacceptably high mortality for which no satisfactory remedy exists. *Emblica officinalis* (E.o) is a plant prescribed in Ayurveda, the Indian traditional systems of medicine, for pancreas-related disorders. This study was carried out to evaluate the protective effect of E.o against acute necrotizing pancreatitis in dogs. Pancreatitis was induced by injecting a mixture of trypsin, bile and blood into the duodenal opening of the pancreatic duct. Twenty eight dogs were divided into 4 groups (n=6-8 each): GpI control GpII--acute pancreatitis, GpIII--sham -operated, GpIV--pretreatment with 28 mg E.o/kg/day for 15 days before inducing pancreatitis. Serum amylase increased

from 541.99±129.13 IU/ml to 1592.63 ±327.83 IU (p<0.02) 2 hrs after the induction of pancreatitis in GpII. The rise in serum amylase in both GpIII and GpIV was not significant. On light microscopic examination, acinar cell damage was less and the total inflammatory score was significantly lower in the E.o treated group as compared to GpII. Electron microscopy confirmed this and showed an increased amount of smooth endoplasmic reticulum and small, condensed granules embedded in a vacuole. More studies are needed to explore the clinical potential of E.o and its mechanism of action.

Anti-inflammatory activities of emblica officinalis Gaertn leaf extracts.

Emblica officinalis Gaertn, a tree growing in subtropical and tropical parts of China, India, Indonesia and the Malay Peninsula, has been used for anti-inflammatory and antipyretic treatment of rural populations in these areas. In the present study, we examined the effects of *Emblica officinalis* extracts on carrageenan- and dextran-induced rat hind paw oedema. Anti-inflammatory activity was found in the water fraction of methanol extract of the plant leaves. The effects of the same fraction were tested on the synthesis of mediators of inflammation such as leukotriene B₄ (LTB₄), platelet-activating factor (PAF) and thromboxane B₂ (TXB₂), and on LTB₄- and N-leucocytes (PMNs) in-vitro. The water fraction of the methanol extract inhibited migration of human PMNs in human platelets during clotting, suggesting that the mechanism of the anti-inflammatory action found in the rat paw model does not involve inhibition of the synthesis of the measured lipid mediators.

Effect of the amla on serum cholesterol levels

The effect on total serum cholesterol and its lipoprotein fractions of supplementation of the diet with amla (*Emblica officinalis*, Gaertn., the Indian gooseberry) was studied in normal and hypercholesterolaemic men aged 35-55 years. The supplement was given for a period of 28 d in the raw form. Both normal and hypercholesterolaemic subjects showed a decrease in cholesterol levels. Two weeks after withdrawing the supplement, the total serum cholesterol levels of the hypercholesterolaemic subjects rose significantly almost to initial levels.

***Emblica officinalis* reduces serum, aortic and hepatic cholesterol in rabbits.**

Emblica officinalis reduced serum cholesterol (p less than 0.001), aortic cholesterol (p less than 0.001) and hepatic cholesterol (p less than 0.001) significantly in rabbits. *Emblica officinalis* did not influence euglobulin clot lysis time, platelet adhesiveness or serum triglyceride levels.

Contraindications: acute diarrhea

Drug Interactions: Due to the cardioactive chemicals in this herb the following drug interactions are possible: interference and/or antagonism with antiarrhythmics; antagonism of beta-adrenoceptor blocking drugs; potentiation of cardiac glycosides and increased risk of hypokalemia; when combined with depolarizing muscle relaxants there is a risk of arrhythmia; interference with nitrates and calcium-channel blockers; may increase the potential terfenadine has to cause arrhythmias.

Warning:

The fruits, bark and leaves are rich in tannins are incompatible with alkalis, gelatin, heavy metals, iron, water, metallic salts, strong oxidizing agents and zinc sulfate. Tannins precipitate proteins. Tannins may cause bowel irritation, liver damage, irritation of the stomach and gastrointestinal pain. Long-term and/or excessive use of herbs containing high concentration of tannins is not recommended. Correlation has been made between esophageal or nasal cancer in humans and regular consumption of certain herbs with high tannin concentrations.
